

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
30 October 2003 (30.10.2003)

PCT

(10) International Publication Number
WO 03/089579 A3

(51) International Patent Classification⁷: **C12N 1/14,**
1/16, 5/06

CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH,
GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC,
LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW,
MX, MZ, NI, NO, NZ, OM, PH, PL, PT, RO, RU, SC, SD,
SE, SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US,
UZ, VC, VN, YU, ZA, ZM, ZW.

(21) International Application Number: **PCT/US03/11366**

(22) International Filing Date: 14 April 2003 (14.04.2003)

(25) Filing Language: English

(84) Designated States (regional): ARIPO patent (GH, GM,
KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW),
Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM),
European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE,
ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO,
SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM,
GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

(26) Publication Language: English

(30) Priority Data:
60/372,081 15 April 2002 (15.04.2002) US

Published:

- with international search report
- before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments

(71) Applicants and

(72) Inventors: **ALLNUTT, Thomas, F., C.** [US/US]; 14692
Mustang Path, Glenwood, MD 21738 (US). **HAREL, Moti**
[IL/US]; 2012 Masters Drive, Baltimore, MD 21209 (US).

(74) Agents: **GARRETT, Arthur, S.** et al.; Finnegan, Hen-
derson, Farabow, Garrett & Dunner, L.L.P., 1300 I Street,
N.W., Washington, DC 20005-3315 (US).

(88) Date of publication of the international search report:
24 December 2003

(81) Designated States (national): AE, AG, AL, AM, AT, AU,
AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU,

For two-letter codes and other abbreviations, refer to the "Guid-
ance Notes on Codes and Abbreviations" appearing at the begin-
ning of each regular issue of the PCT Gazette.

A3

WO 03/089579

(54) Title: INCORPORATION OF ANAEROBIC BACTERIA IN FEED FORMULATION

(57) Abstract: Anaerobic bacteria are incorporated in a feed such that they provide a benefit to the consuming animal. Anaerobic bacteria can be viable and colonize the gut to provide this benefit by displacing harmful bacteria, secreting a particular agent (e.g., enzyme, antibiotic or bioactive compound), binding or sequestering harmful organisms or compounds, or providing a beneficial physical effect. Anaerobic bacteria can also be added in a non-viable form wherein the added bacteria provide a benefit to the consuming organism by delivering preformed compounds such as enzymes, bioactive agents, or polymers. Recombinant anaerobes can be utilized for any of the above purposes. Feeds can contain naked bacteria, spores, treated bacteria such as encapsulated, coated or freeze dried bacteria, in order to maintain either viability or stability of the active function.